Abiotic elicitation of explant culture of *Trifolium pratense* L.

Summary

The objective of this dissertation was to observe the effect of the abiotic elicitors of mercuric chloride and cadmium chloride on the production of flavonoids, and also of the effect of the mercuric chloride elicitor on the production of isoflavonoids in the *Trifolium pratense* L. explant culture (variety DO−8).

The cultures were cultivated in the Gamborg nutrient media with the addition of 2,4−dichlorphenoxyacetic acid (2 $mg.l^{-1}$) and 6−benzylaminopurine (2 $mg.l^{-1}$), in the temperature of 25 °C and during a 16-hours light/8-hours dark period. The quantity of flavonoids was determined spectrophotometrically according to The Czech Pharmacopoeia 2005. The quantity of isoflavonoids was determined by the HPLC method.

We can see from the results of this dissertation that the concentration 10 μmol of both of the used abiotic elicitors had the greatest positive effect on the production of flavonoids. The largest quantity of flavonoids (0,576 %) was detected during the elicitation of cadmium chloride of a 10-μmol concentration and after 48−hour application when the quantity of flavonoids increased by statistically significant 294 % in relation to the control sample. The quantity of isoflavonoids was determined by the HPLC method during the elicitation of the *Trifolium pratense* L. explant culture (variety DO−8) by mercuric chloride. The greatest effect was detected at the concentration 0,1 μmol of this elicitor and after 48−hour application. The elicitation had the most significant positive effect on the production of isoflavonoid genistin. The quantity of genistin was 0,08 % whilst the concetration 0,1 μmol and after 48−hour application which represents an increase in the production of genistin by 167 % in relation to the control sample.